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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,170	10/23/2003	Brian R. Miller	85999SHS	8345

7590 09/07/2004

Thomas H. Close, Patent Legal Staff
Eastman Kodak Company
343 State Street
Rochester, NY 14650-2201

EXAMINER

MARTINEZ, JOSEPH P

ART UNIT	PAPER NUMBER
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2873

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/692,170

Applicant(s)

MILLER ET AL.

Examiner

Joseph P. Martinez

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10-23-03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 contains additional claim language after the completed sentence which makes the claim indefinite for failing to particularly point out and distinctly claim the subject matter.

Claim 10 contains "lacks antecedent" on line 3, wherein the inclusion of "lacks antecedent" makes the claim indefinite for failing to particularly point out and distinctly claim the subject matter.

For purposes of examination, the term "lacks antecedent" will be omitted from the claim language. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burger (6381072).

Re claim 1, Burger teaches for example in fig. 26, a multiple aperture imaging system, comprising: a) an array of lens elements (573a, 573b, 573c, 573d) for capturing light and reducing a diameter of exiting light bundles (col. 38, ln. 24-26, wherein the office interprets the diameter of the light beam entering 573b to be larger than the light beam exiting 573b, and therefore meet the claimed limitations), wherein the exiting light bundles exit from the array of lens elements (573b); c) a means for reducing a total area of the exiting light bundles (573c); and d) means (571d) for combining all the exiting light bundles from the array of lens elements (col. 6, ln. 59-67) to form an image with resolution comparable to a single lens element having an equivalent aperture size respective to the array of lens elements (38, ln. 33-34, wherein the office interprets the image resolution to be comparable to a single lens element since an equivalent device can be retrofitted to a 35mm camera with a single lens element, as taught by Burger in col. 1, ln. 29-31).

But, Burger fails to explicitly teach b) a means for correcting optical phase within the embodiment.

However, Burger teaches for example, a means for correcting optical phase (col. 3, ln. 10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the embodiment of Burger to include the means for correcting optical phase taught by Burger in order to correct for misalignments, distortions or astigmatisms.

Re claim 12, Burger teaches for example in fig. 26, a method for forming an image with resolution equivalent to an array of lens elements, comprising the steps of: a) capturing light with the array of lens elements (573a, 573b, 573c, 573d); b) directing the light exiting the array of lens elements into a plurality of exiting light bundles (at the output of 573b); c) reducing the plurality of exiting light bundles' diameters (col. 38, ln. 24-26, wherein the office interprets the diameter of the light beam entering 573b to be larger than the light beam exiting 573b, and therefore meet the claimed limitations); e) reducing the plurality of exiting light bundles' geometrical area (via 573c); f) combining each of the plurality of exiting light bundles from the array of lens elements (col. 6, ln. 59-67) to form an image with resolution comparable to a single lens element having an equivalent aperture size respective to the array of lens elements (38, ln. 33-34, wherein the office interprets the image resolution to be comparable to a single lens element since an equivalent device can be retrofitted to a 35mm camera with a single lens element, as taught by Burger in col. 1, ln. 29-31).

But, Burger fails to explicitly teach d) a means for correcting optical phase within the embodiment.

However, Burger teaches for example, a means for correcting optical phase (col. 3, ln. 10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the embodiment of Burger to include the means for correcting optical phase taught by Burger in order to correct for misalignments, distortions or astigmatisms.

Re claims 2 and 13, Burger further teaches for example, the array of lens elements are arranged in a rectangular geometry (col. 10, ln. 48-49).

Re claims 3-6 and 14-17, Burger further teaches for example in fig. 26, the means (573c) for reducing the total area of the exiting light bundles from the array of lens elements shifts placement of the exiting light bundles in a predetermined direction, selected from the group including horizontal and vertical and both horizontally and vertically (col. 38, ln. 67 to col. 39, ln. 1-4, wherein the office interprets the CCD 572 of fig. 26 to be dimensionally smaller than lens array 573c in both height and width and therefore the light is shifted in both the horizontal and vertical directions, relative to a central optical axis).

Re claims 7 and 18, Burger further teaches for example, the array of lens elements are separated (col. 10, ln. 48-52) to create a sparse aperture (wherein the office interprets Burger to suggest varying the lenslet-to-lenslet spacing to include sparse).

Re claim 8, Burger further teaches for example in fig. 26, telescopes (573a, 573b, 573c, 573d used in conjunction with each other) are used as lens elements (col. 3, ln. 21-33, wherein the office interprets the use of a “stack” to create a “lenslet channel” to teach the claimed limitation).

Re claim 9, Burger further teaches for example, the multiple aperture imaging system as disclosed above.

But, Burger fails to explicitly teach a plurality of mirrors are used instead of the array of lens elements.

However, Burger teaches for example, the use of a mirror to fold the image back onto itself in an intermediate image plane (col. 42, ln. 11-15). Wherein the office interprets “fold the image back onto itself” to disclose reducing the diameter of the light beam. Furthermore, it would have been obvious to one of ordinary skill in the art to provide more than one mirror to further fold the image back onto itself in an intermediate image plane in order to provide a light beam with a further reduced diameter.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Burger to include a plurality of mirrors to fold the image back onto itself in order to provide a light beam with a further reduced diameter to match the size of a CCD.

Re claim 10, Burger further teaches for example in fig. 26, an imaging sensor is selected from the group consisting of charge-coupled devices (572).

Re claim 11, Burger further teaches for example, the imaging system is foldable (col. 42, ln. 11-14).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph P. Martinez whose telephone number is 571-272-2335. The examiner can normally be reached on M-F 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM
8-26-04



Georgia Epps
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